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Substitute for form 1449A/PTO		Complete If Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>		Application Number	10/112,280 10/659,467
		Filing Date	March 29, 2002 9/10/2003
		First Named Inventor	Welsh, Michael J.
		Art Unit	4014 1647
		Examiner Name	Sandra Wegert
		Attorney Docket Number	P05405US0 1
		Sheet	1

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Examiner Signature	/Sandra Wegert/	Date Considered	01/15/2008
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Sheet	2	of	84												

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/SLW/	1	BENSON, "Acid Evoked Currents in Cardiac Sensory Neurons A Possible Mediator of Myocardial Ischemic Sensation," Oregon Health Sciences University, pp. 921-928 (1999)	
/SLW/	2	CHEN, "A sensory Neuron-Specific, Proton-Gated Ion Channel," Proc. Natl. Acad. Sci., Vol. 95, pp. 10240-10245, (August 1998).	
/SLW/	3	HRUSKA-HAGEMAN, "Interaction of the Synaptic protein PICK1 (Protein Interacting with C Kinase 1) with the non-voltage gated sodium channels BNC1 (brain Na+channel 1) and ASIC (Acid-Sensing Ion Channel)," Biochem J., Vol. 361, No. Pt 3, pp. 443-50 (February 1, 2002).	
/SLW/	4	WELSH, "ASIC and BNC1 Mediate Proton-Gated Currents in Hippocampal Neurons," Society for Neuroscience Abstracts, Vol. 27 No. 2 pp. 2416 (2001)	
/SLW/	5	WELSH, "Drasic, ASIC and BNC1 form Heteromultimeric Proton-Gated Channels in Mouse DRG Neurons," Society for Neuroscience Abstracts, Vol. 27, No. 2, pp. 2414 (2001).	
/SLW/	6	WELSH, "The Acid-Activated Ion Channel ASIC Contributes to Synaptic Plasticity, Learning and Memory" Neuron, Vol. 34, 463-477, April 25, 2002	
/SLW/	7	WEMMIE, "The Role of ASIC, An Acid Sensing Ion Channel in Synaptic Plasticity, Learning, and Memory," Society for Neuroscience Abstracts, Vol. 27 No. 2, pp. 2416 (2001).	
/SLW/	8	XIE, "The Drastic Channel Subunit Functions in Detection of Touch and Acid," Society for Neuroscience Abstracts, Vol. 27, No. 2, pp. 2168 (2001)	
/SLW/	9	XIE, "Drastic Contributes to pH-Gated Currents in Cultured DRG Sensory Neurons by Forming Multimeric Cation Channels, Society for Neuroscience Abstracts, Vol. 27, No. 2, pp. 2169 (2001)	
/SLW/	10	BENSON, "Heteromultimers of DEG/ENaC Subunits form H+-gated channels in mouse sensory neurons" PNAS, vol. 99, no. 4, pp 238-2343 (February 19, 2002)	
/SLW/	11	LINGUEGLIA "A Modulatory Subunit of Acid Sensing Ion Channels in Brain and Dorsal Root Ganglion Cells", The Journal of Biological Chemistry, Vol. 272, No. 47, pp. 29778-29783 (November 21, 1997)	
/SLW/	12	ESCOUBAS "Isolation of a Tarantula Toxin Specific for a Class of Proton-gated Na+ Channels" The Journal of Biological Chemistry, Vol. 275, No. 33, pp. 25116-25121, August 18, 2000	
/SLW/	13	ALLEN "Modulation of ASIC Channels in Rat Cerebellar Purkinje Neurons by Ischaemia-related Signals" Journal of Physiology (2002) 543, 521-529	

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		First Named Inventor	WELSH, Michael J., et al.
		Group Art Unit	1644 1647
		Examiner Name	Sandra Wegert
Sheet 23 of 34	Attorney Docket Number	P05405US01	

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/SLW/	14	ALVAREZ de la Rosa, "Distribution, Subcellular Localization and Ontogeny of ASIC1 in the Mammalian Central Nervous System, Journal of Physiology (2003) 546.1, pp. 77-87	
/SLW/	15	DRISCOL, "Protons at the Gate: DEG/ENAC Ion Channels Help Us Feel and Remember" Neuron, Vol. 34, 336-340, April 26, 2002	
/SLW/	16	EVERITT "Emotion and Motivation: The Role of the Amygdala, Ventral Striatum, and Prefrontal Cortex" Neuroscience and Biobehavioral Reviews 26 (February 20, 2002) 321-352	
/SLW/	17	FANSELOW, "Why We Think Plasticity Underlying Pavlovian Fear Conditioning Occurs in the Basolateral Amygdala" Neuron, Vol. 23, 229-232, June, 1999.	
/SLW/	18	GARCIA-ANOVEROS "BNAc1 and BNAc2 Constitute a New Family of Human Neuronal Sodium Channels Related to Degenerins and Epithelial Sodium Channels" Pro. Natl. Acad. Sci. USA, Vol. 94, pp. 1459-1464, February 1997	
/SLW/	19	HYMAN "Addiction and the Brain: The Neurobiology of Compulsion and its Persistence" Nature Reviews/Neuroscience, Macmillan Magazines, Ltd., Vol. 2, October 2001	
/SLW/	20	MCKERNAN "Fear Conditioning Induces A Lasting Potentiation of Synaptic currents <i>in vitro</i> " Nature, Vol 390, December 1997	
/SLW/	21	PRICE "The Mammalian Sodium Channel BNC1 is Required for Normal Touch Sensation" Nature, Vol. 407, October 26, 2000	
/SLW/	22	PRICE "The DRASIC Cation Channel Contributes to the Detection of Cutaneous Touch and Acid Stimuli in Mice" Neuron, Vol. 32, 1071-1083, December 20, 2001	
/SLW/	23	ROGAN "Fear Conditioning Induces Associative Long-Term Potentiation in the Amygdala" Nature, Vol 390, December 1997	
/SLW/	24	SHEPHERD "Olfactory Bulb In: The Synaptic Organization of the Brain" Ed. 4 No. 5, pp. 159-203, 1998 New York and Oxford	
/SLW/	25	MAGAZANIK "Characterization of Acid-Sensitive Ion Channels in Freshly Isolated Rat Brain Neurons" Neuroscience Vol. 110, No. 4, pp. 723-730, 2002	
/SLW/	26	FOX "Anatomical Pathways and Molecular Mechanisms for Plasticity in the Barrel Cortex" Neuroscience Vol. 111, No. 4, pp. 799-814, 2002	

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/SLW/	27	GRUOL "Hydrogen Ions Have Multiple Effects on the Excitability of Cultured Mammalian Neurons" Brain Research 183 (1980) 247-252	
/SLW/	28	IMMKE "Lactate Enhances the Acid-Sensing Na ⁺ Channel on Ischemia-sensing Neurons" Nature Neuroscience, Vol. 4, No. 9, September 2001	
/SLW/	29	KRISHTAL "A 'Receptor' For Protons in Small Neurons of Trigeminal Ganglia: Possible Role in Nociception" Neuroscience Letters, 24 (1981) 243-246	
/SLW/	30	KRISHTAL "Rapid Extracellular pH Transients Related to Synaptic Transmission in Rat Hippocampal Slices" Brain Research, 436 (1987) 352-356	
/SLW/	31	LOWRY "A Flexible System of Enzymatic Analysis" Academic Press 1972 New York and London	
/SLW/	32	OLSON "An Acid Sensing Ion Channel (ASIC) Localizes a Small Primary Afferent Neurons in Rats" Rapid Science Ltd., Vol. 9, No. 6, April 1998	
/SLW/	33	WELSH "Biochemical Basis of Touch Perception: Mechanosensory Function of Degenerin/Epithelial Na ⁺ Channels" The Journal of Biological Chemistry, Vol. 277, No. 4, January 25, 2002 pp 2369-2372	
/SLW/	34	WALDMANN "A Proton-gated Cation Channel Involved in Acid-sensing" Nature, Vol. 386, March 13, 1997	

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